Computer Team 2011

Montaña de Luz
Post-Trip Documentation

Liz Hudak
Sam Raudabaugh
Jenny Boguski

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All photos used in the documentation are available at https://picasaweb.google.com/105835098752889752898/Jenny#

Think about how you are valuable –
not how valuable you are.

Introduction

For the past six years, Ohio State has been sending service teams to Montaña de Luz, an organization in Honduras that provides comprehensive care for children affected by HIV/AIDS. In 2005, Ohio State's first computer team helped convert the on-site morgue into a computer lab, as shown in Figure 1. This team also set the ball in motion for connecting the lab to the Internet. In 2006, a concrete pad was installed to support a satellite dish, but the project was stymied by permit issues. Fortunately, advances in satellite technology allowed the 2008 team to install a smaller satellite that did not require a permit. Then the 2009 team was able to set up a wireless Internet system. As this example of Internet access shows, OSU teams have played an important role in repairing and updating technology at Montaña de Luz.

The documentation that these teams have compiled served as the foundation for our work this year. After reading their reports, our team knew that we should be prepared to improve the wireless Internet system, perform routine computer maintenance, and reduce the negative impacts of environmental factors, such as heat and dust. We learned more details about these issues, as well as other problems, from our contacts at Montaña de Luz.

Figure 1. The computer lab in March 2011

Figure 2. Inside the lab

Problem Definitions

We maintained steady email communication with our primary Montaña de Luz contact, Jessica Frisina. She told us that instead of desktops, the computer lab now has 10 ThinkPad laptops running on Microsoft Windows XP Professional Edition, Version 2002, Service Pack 3. There are also three desktop computers in the administration office. Based on Ms. Frisina's emails and input from Service Team Director Ruth DeYoe and Executive Director Erika Shell Castro, our team was able to split the organization's technology problems into four categories:

(1) Wireless Internet

The wireless system cuts out for extended periods of time. Ms. Frisina said the staff usually "wait a few weeks and [the wireless signal] eventually returns."

(2) Hardware

Laptop #2 does not have a functional 'E' key. Laptops #3 and #9 do not have functional batteries or power cords. Laptop #9 also cannot start Windows. Laptop #8 has an oversensitive mouse that causes the cursor to click on every item it touches, regardless of whether the touchpad or an external mouse is used. Instead of using these laptops, the psychologist would like a reliable computer of her own. In the admin office, one desktop computer needs a new hard drive installed. For all computers, there is no backup system in place.

(3) Software

Ms. Frisina requested educational typing programs that teach the children how to use a Spanish keyboard. In addition, the XP operating system installed on all computers is causing difficulties for the staff and students, to be discussed in further detail below.

(4) Environmental factors

The ever-present dust and heat damage computer components and reduce their lifespan.

Pre-trip Objectives

Before arriving in Honduras, we developed a set of four overarching objectives to address the problems outlined above, as also noted in the pre-trip documentation:

(1) Update the wireless system.

To improve the reliability of the wireless system, we will focus on four specific components: cables, routers, access points, and service packages.

First, we decided to replace all the cables that connect the routers and access points because in the past, there have been problems with cables melting. The new outdoor-grade CAT5e cables are more heat-resistant. The most cost-effective option was to buy a 1000-foot spool of this cable, cut pieces to the appropriate lengths, and attach additional hardware to make them computer-ready. The extra cable will be kept in storage and will be able to replace any indoor cables that fail in the future.

Second, we recognized that in the psychologist's office, router failure might be an issue because the computers are plugged into a router to receive their Internet signal. If the router failed, the computers would not be able to connect to the Internet. We will swap the current router with one that we know is functional. If that improves the signal, we will keep it connected. If there is no change, we will continue to use the current system and store our back-up.

Third, after consulting with industry professionals David Hudak and Kevin Knuth, we came to the conclusion that the access points currently in place are likely still operational, as they are designed for outdoor use. Nonetheless, given the damaging environmental factors in Honduras, we were unable to rule out a malfunctioning access point. To ensure that we have the

ability to fix the wireless system, we opted to bring down two new EnGenius EOC 2611[1] access points and store the others as back-ups in case of failure of new components.

Fourth, we realized that the laptops at Montaña de Luz have the ability to run faster Internet. However, Ms. Frisina informed us that the organization downgraded their Internet service plan to save money. We will consider other options offered by their Internet provider and discuss the possibility of upgrading to a better service package.

(2) Repair hardware issues.

For Laptop #2, we will install a new keyboard. For Laptops #3 and #9, we will provide new power cords. Because the laptops are usually plugged in, we decided an investment in new batteries for these computers was not worthwhile. For Laptop #8, we will reconfigure its settings and install a new driver if needed. For the admin desktop computer, we will install the hard drive provided by Ruth DeYoe. On all of the computers, we will also implement a DVD backup system.

(3) Install updated software.

To address outdated software issues, we will install free, teacher-recommended typing software. We will also install Windows 7 and teach the new operating system to students and staff. While Windows XP is still operational, Windows 7 is a more secure system that is easier for people with limited computer knowledge to use. It should also resolve issues with outdated drivers and operating system malfunctions, as in the case of the oversensitive mouse on Laptop #8 and the inability to launch Windows on Laptop #9. And perhaps most importantly, we are able to offer Windows 7 and Microsoft Office in Spanish. These systems have a similar look and feel to the previous systems they were using and provide the obvious advantage of Spanish

[1] Equipped with an improved antenna and more water resistance, the EOC 2611 model is an upgraded version of the EOC 2610 model, which has been discontinued since the 2009 team installed it.

formatting. Before we make these changes, Ms. Frisina is gathering files on each computer for us to save so that no important data is lost.

Throughout this process, we will interact as much as possible with the staff. We will also leave instructions for basic computer tasks, such as running virus scans and installing software upgrades.

(4) Install a protective storage cabinet.

To combat dust while maintaining security, we will install a cabinet to store spare computer parts and laptops that are not being used. We will seal the cabinet with aquarium sealant and equip it with a lock. For alternative dust protection, we will also provide keyboard covers and anti-static spray for the computers.

Materials Budget

Description	Notes	Unit Cost	Quantity	Total	Supplier
EnGenius EOC 2611	Outdoor wireless access point	$76	2	$152	Newegg
Custom outdoor network cable	1000 ft.	$175	1	$175	Shireen
CAT5e cable connectors, VGA cables (for old monitors)	100-pack of connectors	$50.00	1 pack of connectors, 2 VGA cables	$50	Micro Center
20pk Blank DVDs with cases	Backup system	$13	1	$13	Newegg
Cable-making tools	Cable assembly and maintenance	$0	1	$0	Borrow
ThinkPad T60 Spanish keyboard	Fix malfunctioning "E" key	$30	1	$30	Ebay
ThinkPad T60 AC adapter	Provide power to 2 laptops	$48	2	$96	Lenovo
Windows 7 Professional	Operating system upgrade	$0	10	$0	Donation
Walkie talkies	Communicate during setup and testing	$0	2	$0	Donation
Cabinet, pack of dusters, duct tape, electrical tape	Laptop storage and maintenance	$60	1 of each	$60	Home Depot (asked for discount, received 10% off)
			TOTAL	**$576**	

Implementation Plan

Date	Goals
Saturday, March 19	- Arrive at Montaña de Luz in the afternoon - Test and replace cables
Sunday, March 20	- Visit to El Picacho (The Peak),coffee farm, and Santa Lucía
Monday, March 21	- Complete diagnostics on wireless system - Install transmitter and receivers
Tuesday, March 22	- Resolve wireless issues, if necessary - Install hard drive and new keyboard
Wednesday, March 23	- Upgrade laptops to Windows 7 - Fix oversensitive mouse - Implement backup system
Thursday, March 24	- Install laptop storage unit with shelves
Friday, March 25	- Run cables throughout psychologist's office building - Resolve any remaining issues
Saturday, March 26	- Depart in the morning for 1pm flight

Actual Implementation

Date	Activities
Saturday, March 19	- Arrived at Montaña de Luz in the afternoon - Took a tour of campus - Unpacked materials
Sunday, March 20	- Visited El Picacho (The Peak), coffee farm, and Santa Lucía
Monday, March 21	- Held meetings (morning and noon) to meet staff and discuss projects - Tested and replaced computer lab's access point - Created cables - Replaced cable between lab access point and lab router - Installed Spanish keyboard on Laptop #2 (to fix 'E' key) - Provided Laptops #3 and #9 with new power adapters *Power outage around 11am*
Tuesday, March 22	- Prepared workspace in admin office - Replaced old cables in admin office with new cables - Replaced admin access point with new access point - Assembled cabinet for the lab and equipped it with a lock - Examined old computers in the bodega (shed) - Examined hard drive for admin computer - Reorganized admin office to reduce number of wires on floor *Power(and water pressure) returned around 2pm*
Wednesday, March 23	- Repaired Internet connectivity issues with Ms. Frisina's MacBook Pro - Gave staff a Windows 7 demo so they could decide whether or not they wanted to install it; received approval for installation - Transferred each laptop's pre-prepared folders onto external hard drive

	- Installed Windows 7, recommended drivers, Windows Security Essentials, and Microsoft Office on each laptop - Created desktop shortcuts for relevant programs, such as Word - Created and ran cable between admin office and lab for direct Internet access - Started setting up psychologist's new laptop
Thursday, March 24	- Completed and double-checked software installation - Tested extra routers; found them to be functional - In psych office, reconfigured extra router to act as a switch with more ports - Created and ran cable from lab to psych office - Harvested spare parts and packaging to create makeshift bracket for hard drive - Installed hard drive into admin computer but unable to retrieve contents - Attempted to repair dysfunctional screen of Laptop #1
Friday, March 25	- Ran cables between admin computers and admin router - Trimmed excessively long cables in admin office - Ran extra cable between admin desk and router for future volunteer's laptop - Tested extra computer parts from bodega and lab - Attempted but failed to repair *tia*'s (aunt's) 13^{+} -year-old computer - Afternoon debriefing with staff to explain the outcomes of our projects
Saturday, March 26	- Finished packing materials, including old computer parts to be recycled - Departed in the morning for 1pm flight

Objectives Achieved

The timeline chronicled on the previous two pages summarizes the objectives that we achieved during our stay in Honduras. Although faced with a more varied problem set than we originally anticipated, we succeeded in accomplishing goals in the following four areas:

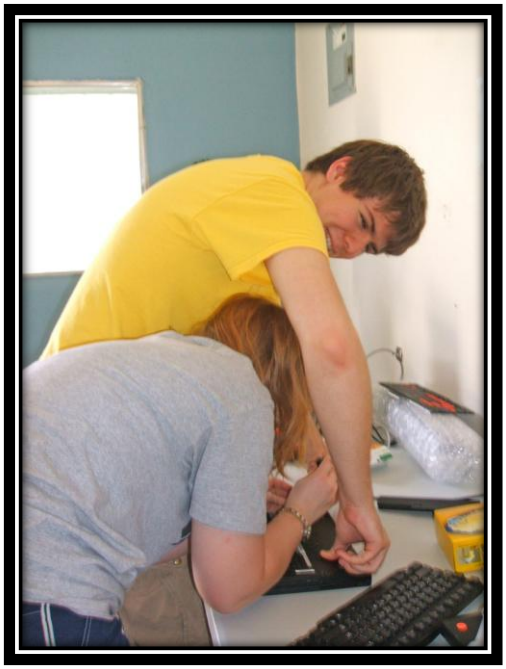
(1) Updating the Internet system.

(2) Addressing hardware issues.

(3) Installing updated software.

(4) Installing a protective storage cabinet.

Each of these areas is described in more detail below.



Figures 3 and 4. Reaching our goals sometimes required us to work in close quarters … and request the help and ingenuity of others.

(1) Updating the Internet System

Before leaving for Honduras, we spoke with Brad Doudican, an OSU graduate student who assisted the 2010 and 2011 teams. He provided us with an overview of how the Internet was set up at Montaña de Luz, as noted in the pre-trip documentation. At the beginning of our week in Honduras, we attempted to update and repair the wireless Internet system that Mr. Doudican had described. To do so, we focused on the four original components of our pre-trip plan: service packages, cables, routers, and access points. Testing and adjusting each of these components in turn led us to significantly change the setup of the Internet system by the end of the week.

Service packages

Montaña de Luz's Internet plan, which had been downgraded to save money, had a daily bandwidth allowance of 375 MB. Whenever we approached this limit, the Internet would slow down and eventually stop working altogether. This basic plan was still expensive for the MdL administration, and the next plan up would have cost some $60 *additional* dollars per month. As a result, we had to ration our available bandwidth wisely and discard the idea of an upgrade.

Figure 5. Cable-making tools

Cables

Throughout the week, we created cables from a 1000-foot spool of heat-resistant, outdoor-grade CAT5e cable. To make the cables, we measured and cut cable to appropriate lengths, stripped both ends of the cable, unwound and reordered the eight colored wires inside the cable, tucked these wires inside a plastic connector, and crimped the connector with a special crimping tool (see Figure 5). After that, we used a cable tester to ensure that

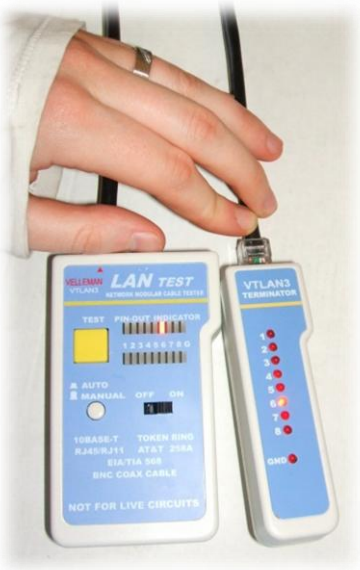


Figure 6. Cable tester

a reliable signal flowed through the cable without interruption (see Figure 6), thus ruling out cable failure as a cause of Internet malfunction.

We used these cables to connect the admin office, the computer lab, and the psychologist's office; replace several faulty cables inside these buildings; create an extra cable to provide Internet access to a future volunteer's computer in the admin office; and connect administrative desktop computers directly to the router in the admin office.

In addition to providing more reliable Internet access, using cables of appropriate lengths and running them along the wall instead of the floor made a substantial difference in the organization of the admin office, as shown in Figure 7. Now staff members no longer have to trip over the cables or try to untangle them to tell what goes where.

Figure 7. Process of admin office reorganization

Although we had anticipated having extra cable on the spool, we ended up finishing the spool. Cables that we made but did not use are in a labeled box on top of the storage cabinet in the computer lab. A second, labeled box of indoor cables is on top of the cabinet as well. These cables can be used to replace any cables that fail in the future.

Routers

We did not bring an extra router to Honduras because a couple of extras were already there. We tested each building's router as well as the two extras, and we found all of them to be functional. As a result, we knew that router failure was not to blame for any Internet connection issues – although, as we will see, router and access point miscommunication *was* an issue.

Figure 8. Brad Doudican adjusting an access point on the roof of the computer lab

Outdoor wireless access points

Three access points were already in place when we arrived at MdL: One was mounted on a pole on the admin office, another was mounted on a pole on the computer lab, and the third was mounted under the eaves of the psychologist office's roof. We decided to remove all three of these access points. We installed our two new EnGenius EOC 2611 access points on the admin office (because this was the most critical location and should be kept as up-to-date as possible) and on the computer lab (because we were unable to download configurations from that access point). The strong signal emitted by the admin office's access point rendered an access point outside the psychologist's office unnecessary, so we did not replace the access point there.

Figure 9. Ant-infested access point

An unexpected problem that we encountered during installation was an infestation of ants. Although the computer lab was spared, the access points on both the admin office and the psychologist office were home to hundreds of ants, who were apparently fond of the electromagnetic field produced by the access points. Research has shown that some ant species can detect electromagnetic fields, possibly using them as directional cues toward food or nest sites (MacKay et al., 1992). There is evidence that fire ants, for example, may use magnetic field information in their nesting activities and for orientation purposes (Slowik et al., 1997). Over time, the ants' presence could reduce the effectiveness of the access points and other electronic equipment.

The ant infestation, while possibly part of the problem, could not fully explain the unreliability of the wireless Internet. After we installed the new (and ant-free) EnGenius access points, we still had issues with the wireless, which eventually led us to disable the access points altogether and rely on cables instead. Here is a technical explanation of how and why this happened.

After installing the replacement access points and the wired access in the psychologist's office, we encountered IP address conflicts on the network. This problem usually occurs when one of two things are happening:

1. Two or more DHCP servers are running on the network simultaneously
2. One DHCP server is malfunctioning, incorrectly giving two devices the same number

Initially, we believed #1 was the cause. Installing the router in the psychologist's office incorrectly (with the router's DHCP server erroneously enabled) may have led to these conflicts. To troubleshoot the problem, we deactivated every device on the network and started over from the top of the network diagram (the satellite modem and the admin office's Asus router). The top-level router's DHCP server was left on. Additional devices (the EnGenius access points and the Linksys router in the psychologist's office) were carefully configured to have their DHCP servers turned ***off*** before connecting them to the network.

However, when we added the EnGenius access points to the network, we again experienced IP address conflicts, even with only one DHCP server running. Thus, #1 is likely not the cause. We consulted the documentation provided by EnGenius for more insight. EnGenius claims that when the DHCP server is disabled on its access point, any device that connects through the access point should be able to get its address from a DHCP server elsewhere on the network (like the one running on the admin office's Asus router).

Nevertheless, our team saw that devices connecting through the EnGenius access point were getting addresses that were already in use. Therefore, we recommend that future teams work closely with EnGenius for clarification on this issue. Until it is resolved, the access points should remain deactivated, as in the setup reflected in Figure 10 below.

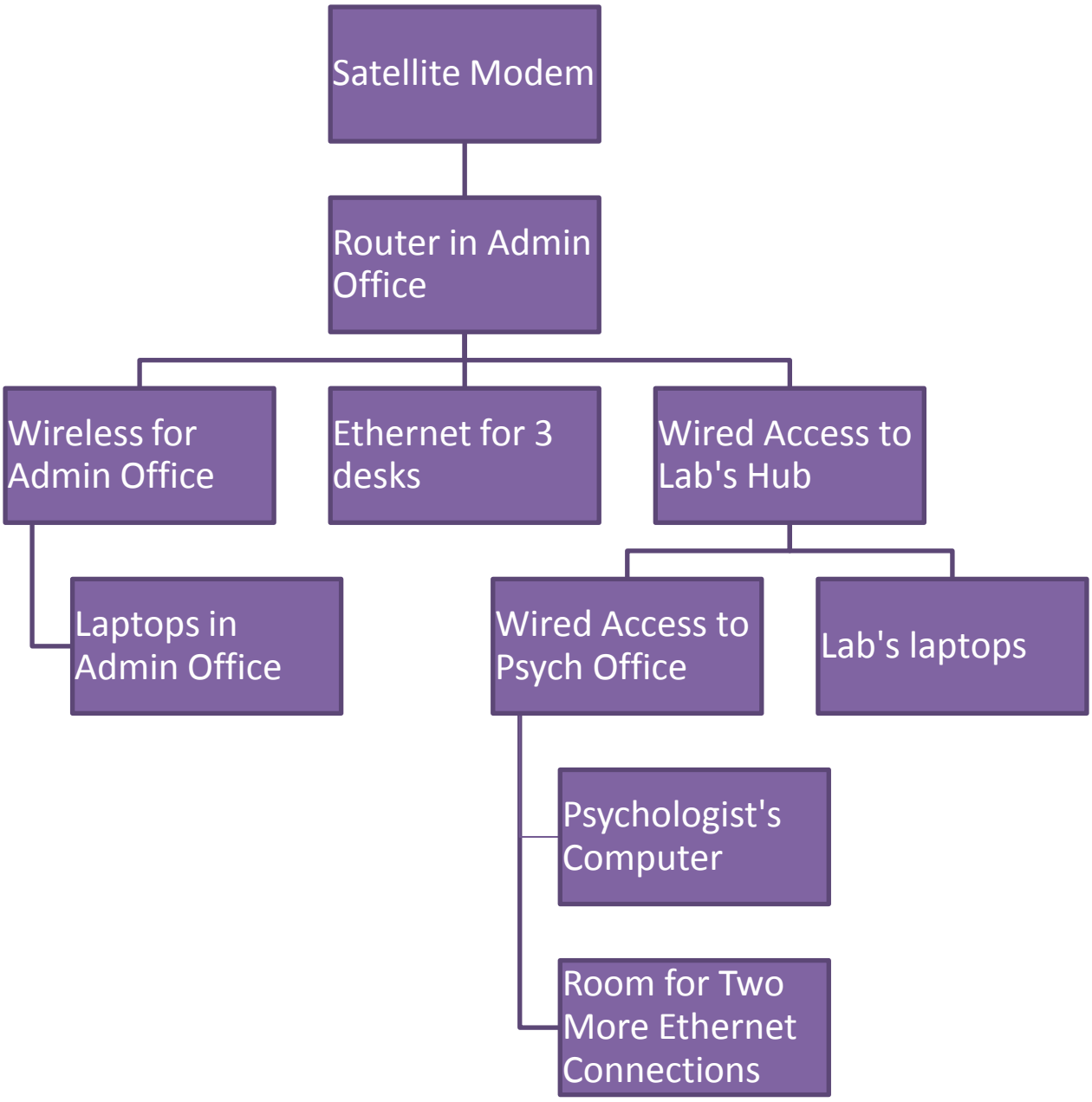
Terminology:

DHCP server – software that assigns each device on the network a unique number

IP address – like a home address, a unique number that a device uses to network with other devices

IP address conflicts – two devices on the network were assigned the same number, neither will be able to connect as a result

Figure 10. Post-Trip Internet Setup



(2) Addressing hardware issues.

Our second area of focus involved routine repairs and maintenance in all three buildings.

In the computer lab, we worked with the laptops[2]. For Laptop #2, we installed a new Spanish keyboard that resolved the malfunctioning 'E' key issue. For Laptops #3 and #9, we provided new power adapters. As for Laptop #8, which was the one with an oversensitive touchpad, the psychologist did not remember to bring it from her house to campus. After the trip, however, we emailed Ms. Frisina with illustrated instructions on how to disable the tapping feature on the laptop (see Appendix E). If neither this action nor the upgrade to Windows 7 (provided on a disc stored in the lab cabinet) resolves the issue, we will continue to work with Ms. Frisina to find a solution.

There were also two laptops with problems that we had not known about beforehand. For Laptop #4, which had had tea spilled on it, we gently worked the keys until they stopped sticking. For Laptop #1, we needed to find a solution for its dysfunctional screen that would not turn on. We tested it by plugging it into an external monitor, but this still got no read, even after we removed the laptop's memory and tried again. We realized that the problem involved more than just the screen, and we did not have the replacement parts on hand that would be needed to fix it. We decided to return the laptop to Columbus to be repaired or recycled.

In the admin office, we helped Ms. Frisina connect her MacBook Pro to the Internet. Then we attempted to install the hard drive provided by Ruth DeYoe into one of the desktop computers. Unfortunately, there were several problems during this process. Most significantly, we were unable to access its contents due to a malfunctioning enclosure. In addition, the bracket that secured the hard drive was not returned to Honduras with the hard drive, so we constructed a

[2] To log into the laptops, we used the password *4jesus*. When we wanted to physically move the laptops (to clear off the desk, take the laptop apart, etc.), we had to unlock them from the wall. Each com was 401 followed by the number of the laptop, 0-9. The zero represented Laptop #10.

makeshift bracket from the packing material from one of the EnGenius access points and screws salvaged from a spare computer. This makeshift bracket allowed for a successful installation; however, there was a SATA cable missing from the desktop computer, which prevented the hard drive from communicating with the mother board. We decided to return the hard drive to Columbus, recover the files, and then make them available on www.sugarsync.com for the MdL staff to access. Because the staff did not need to download all of the files at once (which easily would have used all of the daily bandwidth allowance) and could instead download what they needed as they needed it, this plan worked out well.

In the psychologist's office, we helped set up a new laptop[3] for the psychologist so that she would not have to rely on the computer lab laptops anymore. MdL ordered her an ASUS K52F-BBR5 Notebook PC[4], and we installed Open Office in Spanish.

We also recommended this laptop as a replacement for the admin office computers, should MdL wish to make an upgrade in the future. Having the same style of computer throughout campus would simpler in terms of consistency and more useful in terms of interchangeable parts. Furthermore, using laptops instead of desktop would increase mobility while decreasing energy use, insect infestations, and the number of cables in the admin office.

Throughout all buildings, we also backed up relevant data on each computer, burned it onto a DVD, and stored it in the computer lab. Future teams should be aware that at the moment, only the psychologist's computer has both DVD-burning and DVD-reading capabilities. The laptops in the computer lab have only DVD-reading capabilities, and the admin desktops cannot handle DVDs at all. Therefore, an external hard drive is useful for gathering files and transferring them to the psychologist's laptop to be burned onto a DVD, if needed.

[3] We created an OSU Admin account, password *admin*, on the laptop in addition to an account for the psychologist.
[4] Details available at http://www.tigerdirect.com/applications/SearchTools/item-details.asp?EdpNo=7189127&CatId=4965

One of the *tias* (aunts) brought her computer to us to see if we could fix it. The computer was at least 13 years old, judging by the 1998 sticker on its side. The computer was not registering any electric input: It did not turn on and the power source was not activated. When we replaced the power source with a functional one salvaged from a spare computer, the problem persisted. This indicated that the connection between the power source and the motherboard was not working, suggesting an irreparable problem with the motherboard. Fortunately the *tia* was eligible to buy one of the spare computers that we assessed.

In terms of assessment, we examined spare computers and assorted computer parts from both the bodega and the computer lab. We tested them with cables, external monitors, and towers that we knew were functional, and we salvaged what we could. Anything that did not work and that we could not repair was shipped back to Columbus to be recycled.

(3) Installing updated software.

Before installing any new software, our first step was to backup all relevant data from all computers onto a DVD, which is currently stored in the computer lab cabinet. This process was easy because prior to our arrival, Ms. Frisina had organized the relevant files into specially-marked folders on each computer.

Figure 11. Laptops installing Windows 7. Notice the laptop on the right has a stickerless Spanish keyboard.

After ensuring that no important data would be lost, we were then able to address outdated software issues. We first installed the Spanish version of Windows 7 on one laptop and then showed the result to Ms. Frisina to make sure she liked the new format. After receiving her approval, we installed Windows 7 on the other laptops as well. Doing so resolved the issue with launching Windows on Laptop #9[5] and will possibly correct the oversensitive mouse problem on Laptop #8. We then installed drivers recommended for Windows 7 and also Microsoft Security Essentials, a free antivirus program. Finally, we installed the Spanish version of Microsoft Office on all laptops except #8 and #9. For easy reference, we created shortcuts on each laptop's desktop for Internet Explorer, Microsoft Word, PowerPoint, and Paint. We also changed the web browser's homepage from MSN Latino to Google Honduras because the MSN stories tended to feature scantily clad people.

[5] This laptop has a lower display resolution and less memory than the other laptops. We were unable to load Microsoft Office on it.

After these steps were complete, we gave a demonstration of the new operating system and programs, replete with various Microsoft games, to interested students and staff. They seemed especially happy about the comprehensive Spanish formatting.

We did not have time (or spare bandwidth) to install typing software, but we sent several suggestions of teacher-recommended programs to Ms. Frisina via email. She intends to review them and see which one would be best for MdL.

(4) Installing a protective storage cabinet.

To combat dust while maintaining security, we assembled and installed a cabinet in the computer lab to store spare computer parts and other miscellaneous, technology-related items. A complete list is provided in Appendix A. We equipped the cabinet with a combination lock, whose com is 3–13–27. We did not use aquarium sealant on the edges of the cabinet because the sealant becomes toxic at high temperatures.

Figure 12. Storage cabinet in the computer lab

In addition to the cabinet, we also brought a box of Swiffer dusters. These proved very useful for dusting the laptops and other electrical equipment.

Sustainability Considerations

We addressed sustainability in several ways, both big and small, during and after the trip:

- We increased computer literacy by giving a demonstration of Windows 7 and providing suggestions for computer typing software. When students and staff have a better working knowledge of computers, they are more likely to take proper care of the equipment.
- When we were repairing computers, we reused parts salvaged from other computers as much as possible instead of either buying new ones or scrapping the computer altogether.
- We backed up all computers on campus to a DVD stored in the computer lab. Doing so not only makes for an easy recovery if data is lost, but also saves paper by precluding the need to print every file.
- We dusted inside the laptops in the computer lab to make them run smoothly, thereby extending their lifespan.
- We used exterior-grade cable so that it would not need to be replaced as frequently as indoor-grade cable.
- To save paper, we emailed relevant documentation (see appendices) to MdL staff in order to combat potential problems in the future.
- We brought any computers or parts that we could not repair back to Columbus to be recycled.

Recommendations for Future Teams

(1) Montaña de Luz is interested in educational software for the children, specifically typing and language-learning software in Spanish and English. Providing effective, teacher-recommended programs that teach the children these skills would be beneficial for them.

(2) When components need to be replaced in the future, ensure that they are outdoor grade. If possible, also use outdoor grade equipment for the indoor components. None of the buildings are air conditioned, which causes indoor temperatures to become very hot.

(3) Using laptops instead of desktops reduced the high level of heat in the computer lab. As a result, installing a drop ceiling there is no longer a high-level priority. Nonetheless, finding a cost-effective way to reduce heat in the lab could extend the lifespan of the laptops as well as that of the drooping plastic tables.

(4) Finding additional ways to dust-proof the computers would also extend their lifespan.

(5) The infestation of ants in electronic equipment is a problem that future teams should research and plan for accordingly.

(6) If a team decides to revamp the wireless, they should contact EnGenius to see which router, router software, and content filters would be most compatible with the access points.

(7) Future teams could consider incorporating a temporary Internet service plan upgrade into their budget. By ensuring that the upgrade provides enough bandwidth for the projects, future teams will be able to avoid the issues we had with bandwidth restrictions.

(8) All of the buildings on campus are locked with separate keys. Future teams should make sure to have a consistent storage place, such as an easily-recognizable lanyard, for the key(s) they will use.

We wish future teams the best of luck.

Useful Spanish Vocabulary

Adapter: *el adaptador*

Attach a file: *adjuntar el archive*

Close: *cerrar*

Computer: *la computadora*

Configuration: *la configuración*

Double click on __: *hacer doble clic en __*

Download: *descarga*

Drag and drop: *arrastrar y colocar*

Electricity: *la electricidad*

Exit: *salir*

Hard drive: *el disco duro*

Have fun typing in Spanish! *¡Que te diviertas escribiendo en Español!*

Heat: *el calor*

Help: *ayuda*

Humidity: *la humedad*

Install: *instalar*

Internet provider: *proveedor de Internet*

Internet: *la red*

Keyboard: *el teclado*

Ladder: *la escala*

Link: *el enlace*

Loading: *cargando*

Monitor: *la pantalla*

Mouse: *el ratón*

Operating system: *el sistema operativo*

Outlet: *el chufe*

Password: *la contraseña*

Save: *guarder*

Shortcut: *acceso directo*

Taskbar: *barra de tareas*

To search the Web: *navegar por Internet*

Tower: *el torre*

Typing: *escribiendo a máquina*

Computer Team Agreement

Team Members

- Elizabeth Hudak
- Samuel Raudabaugh
- Jennifer Boguski

Team Project Expectations

- Have fun.
- Establish consistent communication through email and the wiki.
- Be respectful.
- Each person should contribute to projects before implementation.

Team Member Roles and Responsibilities

Name	Role	Responsibilities
Liz	Team Leader	Ensure team follows implementation plan, oversee cabinet installation
Sam	Tech Coordinator	Oversee hardware and software installation
Jenny	Secretary	Prepare presentation and documentation

Team Meeting Ground Rules

- Always copy other group members on emails.
- Be willing to consider all ideas.
- Focus on relevant problems.

Team Member Signatures

1. *Elizabeth Hudak*

2. *Samuel Raudabaugh*

3. *Jennifer Boguski*

Date signed: 2.02.2011

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Appendix A: Cabinet Inventory

- 4 extra EnGenius Wireless Access Points (2 may be damaged by ants)
- 4 EnGenius boxes
- 1 set of Walkie-Talkies
- 2 sets of screwdrivers
    - 1 with multiple bits in the shaft
    - 1 collection of assorted screwdrivers
- 1 Swiffer duster with replacement dust cloths
- 2 boxes of cables (on top of cabinets)
    - 1 marked Internal, to be used inside the buildings only
    - 1 marked External, to be used outside buildings OR inside building. For use inside, try the internal cables first.
- 2 extra routers
- Labeled DVDs with back-ups, software, product keys, and anti-virus programs
- 1 combination lock with com 3-13-27
    - If combination is lost/forgotten, email Liz at hudak.59@osu.edu

Appendix B: Internet and Bandwidth Information

What to do in case of slow internet and how to check bandwidth usage

Note: This process will temporarily kick everyone at MdL off the Internet.

1. The modem (black box) in the admin office has a network cable coming out of it and going into the router (white box). Unplug this cable from the white box while leaving the other end in the black box.
2. Plug the end you just unplugged into any computer.
3. Open a web browser and type 192.168.0.1 in the address bar and hit enter.
4. Make sure that the network status button at the top of the page is Green/OK. If it's not, you may need to call the Internet provider (HughesNet).
5. Click Download Allowance Status at the bottom of the screen.
6. After getting the information, be sure to plug the cable back into the white box to regain Internet access.

If these steps do not work, contact Liz at hudak.59@osu.edu

Appendix C: IP Address Issues

What to do if you get an error on your computer about "IP address already in use on network, IP address in conflict with another system" or similar

1. Unplug the network cable from your computer.
2. Restart your computer.
3. Find a different computer that is not affected (likely one of the laptops in the computer lab).
4. Open a web browser and type in https://192.168.1.1 in the address bar and hit enter.
5. Type in *root* as the username and *m0nt@n@d3luz* as the password
6. From the menus at the top of the screen, look for Reboot Router. Try looking under categories such as Administration and Management.
7. After you find Reboot Router, click on it and go make yourself a cup of Santa Lucia coffee while the router is coming back on.
8. Please note: This process will temporarily kick everyone at MdL off the Internet.
9. After the router comes back on, everyone should have Internet access again. Log into the computer that had the error message, then plug the network cable back in.
10. If you still can't get on the Internet after following Steps 1-9, press windows key+R, type cmd and hit enter.
11. Type ipconfig /release and hit enter.
12. Type ipconfig /renew and hit enter. You should now have access to the Internet.

If these steps do not work, contact Liz at hudak.59@osu.edu

Appendix D: What To Do If…

As of March 2011, there were an adequate number of spaces in the admin office's router for every device. However, if another team is able to resolve the wireless issues, or if another wire needs to be plugged into the router, here is the plan:

There are three cables going to desks in the admin office. There is one cable going to the satellite, one cable going outside to the EnGenius access point, and one cable going to the computer lab. Each cable is labeled: The one going to the satellite is labeled *Satellite*, the one going to Alexandra's desk is *Alex*, the one going to Karin's desk is *Karin*, the one going to the computer lab is *Lab*, and the one going to the extra desk is *Extra*. The one not currently plugged in is the cable going to the EnGenius, which is labeled *EnGenius*.

IF the wireless is fixed by a future team, **THEN** unplug the unused cable to the third desk and plug *EnGenius* in, **UNLESS** someone is now using that third desk. **THEN** unplug *Lab* and plug in *EnGenius*.

IF the wireless does not work, **THEN** unplug *EnGenius* and plug *Lab* or *Extra* back in.

IF another person comes and needs to be connected to the Internet,

IF the person has a wireless card (every laptop should), **THEN** connect them to the Internet in the office wirelessly.

IF the person **DOES NOT HAVE** a wireless card, **THEN** plug them into *Extra*.

IF the third desk is occupied, **THEN** there are no more wired connections open in the admin office. Either a wireless access card must be purchased and installed in the desktop

computers, or another cable can be plugged in and used in the computer lab, which has room for more connections.

IF the Internet is not working in the computer lab, **THEN** test the Internet access in the admin office.

IF the admin office **DOES NOT HAVE** Internet, then there is a problem with the satellite. Contact the Internet provider.

IF the admin office **DOES HAVE** internet, there is a problem with the cable running between the computer lab and the admin office. Contact Liz at hudak.59@osu.edu

IF the wired connections are all working **BUT** the wireless goes out in the admin office, **THEN** there is something wrong with the admin router itself. It either needs to be reset or replaced; either way, contact Liz at hudak.59@osu.edu.

Network: MontanaDeLuz

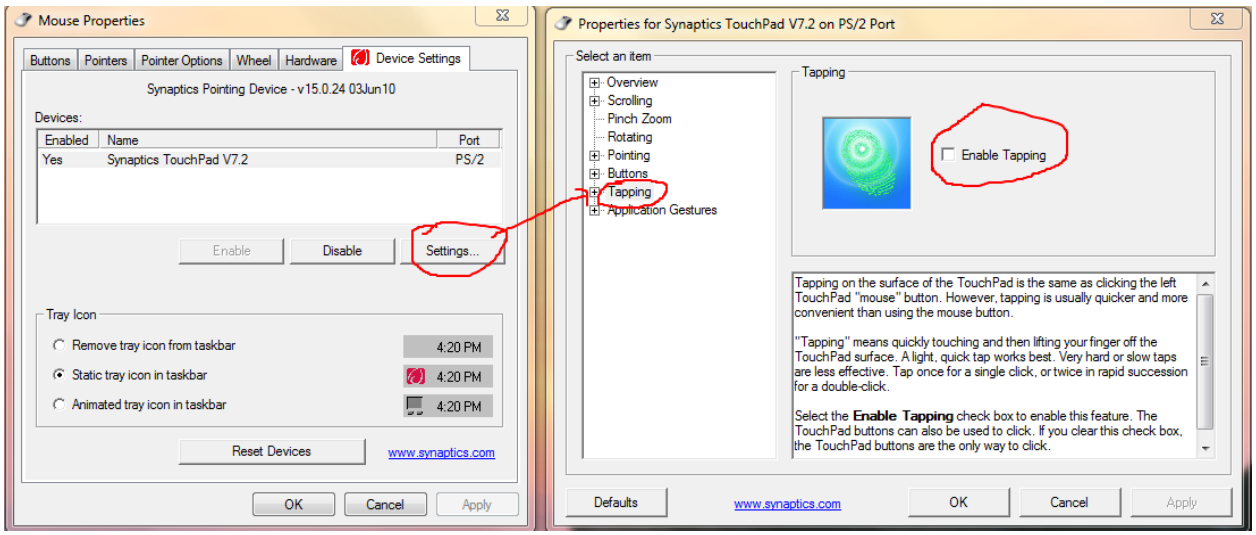
Password: mountainoflight

For **all other problems**, contact Liz at hudak.59@osu.edu

Appendix E: How to Resolve an Oversensitive Touchpad

The issue seems to be with a touchpad setting called Tapping.

- Go to Start->Control Panel->Mouse.
- See the attached picture to find the Tapping setting.



- Make sure Tapping is DISABLED (clear the checkbox).

If this doesn't work you may want to look under Start->Control Panel->Accessibility options.

There should be some settings there regarding the mouse.